

REMARKS

This Amendment is being filed in Response to the November 28, 2008 Decision on Appeal. In accordance with 37 C.F.R. §41.50(b)(1), Applicants reopen prosecution of the claims by filing amendments for review by the Examiner. In the Decision on Appeal, the §101 and §112 rejections of claims 51-322 did not stand, and were withdrawn by the Board. The Board issued a new rejection of claims 51, 118, 127, 156, 157, 160, 228, 237, 266, 267, 270, 271, 281, 285, 290, 294, 299, 304, 307, and 313 under 35 U.S.C. §101 in light of *In re Bilski*.

The Board notes that the applicable test for whether a claimed process recites patentable subject matter is whether the claimed process is (1) tied to a particular machine or apparatus, or (2) transforms a particular article into a different state or thing (Decision on Appeal at page 19, citing *In re Bilski*). The Board notes that part (2) of the test may be satisfied by transforming data, for example as discussed in *In re Abele* (Decision at pages 21-22). The data may be transformed, for example, by turning it into a particular visual depiction on a display, or some other distinct transformation (Decision at page 22).

Further, another post-*Bilski* Board has indicated that so-called “Beauregard” claims recite patentable subject matter under §101 (*Ex Parte Bo Li*). A Beauregard claim is a claim to an article of manufacture embodied as a computer-readable medium and instructions (see MPEP at §2106.01(I)).

Still further, a claim may satisfy §101 if it is tied to a *particular* machine or apparatus (*In re Bilski*).

With the above background in mind, and in order to comply with 35 U.S.C. §101, Applicant amends claims 51, 118, 127, 156, 157, 160-228, 237, 266, 267, 270, 271, 281, 285, 290, 294, 299, 304, 307, and 313 herein pursuant to 37 C.F.R. §41.50(b)(1). After entry of this amendment, claims 51-322 will remain pending, of which claims 51, 118, 127, 156, 157, 160, 228, 237, 266, 267, 270, 271, 281, 285, 290, 294, 299, 304, 307, and 313.

Applicant respectfully traverses the rejection in light of the amendments to the independent claims.

I. Claims 51-117

The Board indicates that claim 51 is not tied to a particular machine or apparatus, nor does claim 51 transform a particular article into a different state or thing (Decision at pages 20-21). Applicants amend claim 51 to recite *producing data representative of one or more physical characteristics or one or more representations of physical characteristics within a physical context of an item of interest with a transducer, inputting said data into an electronic device and outputting said recognized pattern from the electronic device*. Applicant respectfully submits that amended independent claim 51 recites patentable subject matter for two reasons. First, claim 51 transforms data into another state or thing. Second, claim 51 recites steps that determine what type of data is utilized which are not determined by the algorithm. As indicated in *In re Abele*, such “antecedent steps” are “manifestly statutory subject matter.”

The Board notes that *In re Bilski* recognizes that “certain types of data can be transformed to meet the transformation test” (Decision at page 21, citing *In re Abele*). In *Bilski*, the court cited the X-ray attenuation data in *In re Abele* as data that met the transformation test. In light of this, Applicant amends claim 51 to recite *producing data representative of one or more physical characteristics or one or more representations of physical characteristics within a physical context of an item of interest with a transducer, inputting said data into an electronic device and outputting said recognized pattern from the electronic device*.

Applicant notes that the Board cited *In re Abele* with approval as providing an example of patentable subject matter. In *Abele*, two claims were considered (among others). Claim 5, which the Court held did not recite patentable subject matter under §101, read:

5. A method of displaying data in a field comprising the steps of

calculating the difference between the local value of the data at a data point in the field and the average value of the data in a region of the field which surrounds said point for each point in said field, and

displaying the value of said difference as a signed gray scale at a point in a picture which corresponds to said data point.

Dependent claim 6 of *Abele*, which *did* recite patentable subject matter under §101, read:

6. The method of claim 5 wherein said data is X-ray attenuation data produced in a two dimensional field by a computed tomography scanner.

The court indicated that the distinction was that “claim 6 presents data gathering steps not dictated by the algorithm but by other limitations which require certain antecedent steps. It is these antecedent steps that dictate what type of data must be obtained” (emphasis added). The court in *Abele* went on to note that “in any event, we view the production, detection, and display steps as manifestly statutory subject matter and are not swayed from this conclusion by the presence of an algorithm in the claimed method” (684 F.2d at 908).

In claim 51, data representative of one or more physical characteristics or one or more representations of physical characteristics within a physical context of an item of interest is produced *by a transducer*. As in *Abele*, amended claim 51 recites antecedent steps that dictate what type of data is obtained.

Amended claim 51 recites the production of data with a transducer. The data is transformed by applying the method of claim 51. As the Specification notes, processing the data “depends on and dynamically alters (through feedback) the total state of the stored information” (Application at page 35, lines 17-20). The result is that the data is transformed from raw information representing the one or more physical characteristics or one or more representations of physical characteristics within a physical context of an item of interest into a pattern identified from the data. The pattern is output by the processor. Thus, amended claim 51 transforms the transducer data into another state or thing – namely, a pattern identified by a processor.

Further, the Board notes that the Specification “indicates that the data represents physical phenomena,” but that “this aspect of the data is not recited in independent claim 51. In order to expedite prosecution, Applicant amends claim 51 to recite *producing data representative of one or more physical characteristics or one or more representations of physical characteristics within a physical context of an item of interest with a transducer*. Support for this amendment

can be found in the Specification at page 6, lines 25-30, and page 8, lines 19-20 and page 28, line 35 through page 29, line 12.

Accordingly, Applicant respectfully submits that independent claim 51 recites patentable subject matter under §101 for at least two reasons. Amended claim 51 transforms data into another state or thing, and recites “antecedent steps” that are “manifestly statutory subject matter.” Claims 52-117 depend from claim 51, and therefore include each and every element of claim 51. Therefore, Claims 52-117 recite patentable subject matter under §101 for at least the same reasons as claim 51.

II. Claims 118-127

Applicant amends independent claim 118 to recite *producing data relating to said information with a transducer, wherein said information is representative of one or more physical characteristics or one or more representations of physical characteristics within a physical context of an item of interest and outputting, using said display device, a recognized pattern in the information.* Applicant respectfully submits that amended independent claim 118 recites patentable subject matter for at least three reasons. First, amended claim 118 recites antecedent steps that are manifestly statutory subject matter. Second, the above-quoted features transform the raw data produced by a transducer into another state or thing. Third, claim 118 is tied to a particular machine or apparatus.

As noted above with respect to claim 51, the production of data with a transducer is an “antecedent step” not dictated by the algorithm. Such antecedent steps are manifestly statutory subject matter, regardless of the presence of an algorithm in the claimed method.

Claim 118 also transforms the transducer data into another state or thing. As in *In re Abele*, the raw data produced by a device (an x-ray in *Abele*, a transducer in the present case) is transformed into a particular visual display. As the Board indicates, transforming the data into a particular visual depiction transforms the data into a different state or thing (Decision at page 22).

In addition, amended independent claim 118 is tied to a particular machine or apparatus. Specifically, claim 118 recites *inputting said data into a computer comprising a memory and a display device, representing the information in said memory as a plurality of Fourier series in Fourier space, and outputting, using said display device, a recognized pattern in the information*. Applicant respectfully submits that these steps tie the claim to a particular machine or apparatus.

Thus, amended claim 118 recites patentable subject matter for at least three reasons. First, amended claim 118 recites antecedent steps not dictated by the algorithm that are manifestly statutory subject matter. Second, claim 118 transforms data into a different state or thing. Third, claim 118 is tied to a particular machine or apparatus.

Claims 119-127 depend from claim 118 and therefore include each and every feature of claim 118. Accordingly, Applicant respectfully submits that claims 118-127 recite patentable subject matter.

III. Claims 127-155

Applicant amends independent claim 127 to recite *obtaining a string comprising a sum of Fourier series from a memory of a computer, said string representing information representative of one or more physical characteristics or one or more representations of physical characteristics within a physical context of an item of interest*. Applicant respectfully submits that claim 127 transforms data in two ways. Claim 127 transforms a string stored in memory into a Fourier series, and transforms it using intermediate and high-level memories of a computer. This transforms the information into a different state or thing by both changing the information and by changing the way that the information is stored (e.g., from memory, to intermediate memory, to high level memory). This interplay of between intermediate memory and high-level memory also tie the method of claim 127 to particular machine or apparatus.

The method of claim 127 takes the string, which is representative of one or more physical characteristics or one or more representations of physical characteristics within a physical context of an item of interest, and transforms it in steps B-Z by applying a set of filters. The transformed series, which may be used to recognize a pattern in the information, is stored in the

high level memory of the computer. Claim 127 recites: (1) *storing the summed Fourier series to an intermediate memory*; (2) *adding the updated order formatted Fourier series to the summed Fourier series from the intermediate memory to form an updated summed Fourier series in Fourier space*; (3) *obtaining an updated ordered Fourier series from the high level memory*; and (4) *and storing the Fourier series in the intermediate memory in the high level memory of said computer*. Applicant respectfully submits that the interplay between intermediate memory and high-level memory recited in these steps tie the method of claim 127 to a particular machine or apparatus, as well as transforming the data into another state or thing.

Claim 127 further recites sampling and modulating the string with filters, summing the Fourier series, obtaining an ordered Fourier series, and *determining a spectral similarity between the summed Fourier series and the ordered Fourier series, determining a probability expectation value based on the spectral similarity, and generating a probability operand based on the probability expectation value*. The Board recognizes that the X-ray data in *In re Abele* was transformed (Decision at pages 21-22). In *Abele*, the transformation involved calculating a difference between a local value and an average value (see, e.g., *Abele*'s claim 5, quoted above). In claim 127, a spectral similarity between Fourier series is determined, and a probability operand is generated. Applicant respectfully submits that these steps of claim 127 also transform data into another state or thing.

Accordingly, Applicant respectfully submits that claim 127 recites patentable subject matter for at least two reasons. First, claim 127 transforms the data into a different state or thing, both by transforming the information, and by changing the way that the information is stored. Second, claim 127 is tied to a particular machine or apparatus. Claims 128-155 depend from claim 127, and therefore include each and every element of claim 127. Therefore, Applicant respectfully submits that claims 127-155 recite patentable subject matter under §101.

IV. Claim 156

Amended claim 156 recites *a computer memory comprising a set of initial ordered Fourier series and software loaded into the memory of the computer that is executed by the processor of the computer*. Applicant respectfully submits that claim 156 recites patentable

subject matter. Applicant notes that amended claim 156 is not directed to a method, but rather a computer loaded with software that is executed by the computer, which is a particular article.

Amended claim 156 recites *a computer memory comprising a set of initial ordered Fourier series and software loaded into the memory of the computer* that is executed by the processor of the computer. As the Board noted in footnote 19 at page 25 of the decision, such a recitation may be enough to meet the requirements of §101.

Further, claim 156 recites *software loaded into the memory of the computer that, when executed by the processor, causes the computer to ...* The Board recognizes that the methods performed by the claims constitute functional descriptive material (see, e.g., Decision at pages 10-11). When the method is encoded onto a computer readable medium, as in claim 156, the encoded method “defines structural and functional interrelationships between the data structure and the computer software and hardware components which permit the data structure’s functionality to be realized, and thus is statutory” (MPEP at §2106.01(I)).

Still further, the Board notes at page 25 of the Decision, that “while a computer-readable medium may nominally recite an article of manufacture, merely placing abstractions on such an article does not, in our view, somehow transform that article into a *specific* or *particular* article of manufacture” (emphasis added, emphasis on “specific” and “particular” in original). Claim 156 also recites that the data is *representative of one or more physical characteristics or one or more representations of physical characteristics*. Therefore, Applicant respectfully submits that claim 156 is not directed to “abstractions” placed on an article, but rather a computer loaded with and executing software that manipulates representations of real-world physical characteristics.

For at least the reasons above, Applicant respectfully submits that claim 156 recites patentable subject matter under §101.

V. Claims 157-159

Amended independent claim 157 recites *generating, using a computer, an activation probability parameter based on a prior activation probability parameter and a weighting based on an activation rate of a corresponding component, wherein the activation probability*

parameter relates to the frequency that the component is activated and the corresponding information is processed and the information is representative of one or more physical characteristics or one or more representations of physical characteristics within a physical context of an item of interest and storing the activation probability parameter in a memory of the computer. Applicant respectfully submits that claim 157 recites patentable subject matter for two reasons. First, claim 157 is tied to a particular machine or apparatus. Second, claim 157 transforms a specific article into another state.

Initially, Applicants note that the activation probability parameter of claim 157 relates to information *representative of one or more physical characteristics or one or more representations of physical characteristics within a physical context of an item of interest*, and thus is not a mere abstraction but rather represents a real-world item.

Because the activation probability parameter is generated using a computer, and stored in a memory of the computer, Applicant respectfully submits that claim 157 is tied to a particular machine or apparatus. Further, step A of claim 157 notes that, initially, the computer *does not recognize a pattern in the information*. Thus, the computer of claim 157 is not a generic computer, but rather a particular machine or apparatus.

The Board notes at page 19 of the Decision that the “machine-or-transformation” test is satisfied where an article is transformed into a different state. Applicant respectfully submits that the computer of amended claim 157 is transformed into a different state by the application of the method of claim 157. Specifically, step A notes that the computer does not yet recognize a pattern in the information. Thus, the computer recited in claim 157 is a *specific* apparatus, in that is a computer which does not recognize a pattern in the information. By step E, the computer has changed its state to become a computer that *recognizes a pattern in the information*. Applicants therefore respectfully submit that claim 157 recites a transformation of a specific article into another state.

In light of the above, Applicant respectfully submits that amended independent claim 157 recites patentable subject matter under §101 for at least two reasons. First, claim 157 is tied to at least one particular machine or apparatus. Second, claim 157 transforms a specific article into another state. Claims 158-159 depend from claim 157, and therefore include each and every

element of claim 157. Accordingly, Applicant respectfully submits that claims 157-159 recite patentable subject matter under §101.

VI. Claims 160-227

Amended independent claim 160 is a *Beauregard* claim reciting *a computer program product, comprising a computer-readable medium having a computer readable program code embodied therein, said computer readable program code adapted to be executed by a computer to implement a method for recognizing a pattern in information comprising data*. Claim 160 further recites *providing a system, wherein the system comprises distinct software components*. Applicant respectfully submits that claim 160 recites patentable subject matter, because claim 160 recites a particular article (a computer readable medium) encoded with computer readable program code. Such claims have been found to be statutory both pre- and post- *In re Bilski*.

When functional descriptive material is encoded on a computer readable medium, as in claim 160, the encoded computer readable medium defines structural and functional interrelationships between the material and the computer software and hardware components which permit the material's functionality to be realized. Such encoded computer readable mediums are statutory (MPEP §2106.01(I)).

Ex Parte Bo Li, decided after *In re Bilski*, explicitly approved of *Beauregard* claims such as claim 160. The Board found that the *Beauregard* claims satisfied the requirements of §101, stating:

It has been the practice for a number of years that a "Beauregard Claim" of this nature be considered statutory at the USPTO as a product claim. (MPEP 2105.01, I). Though not finally adjudicated, this practice is not inconsistent with *In re Nuijten*. ... In view of the totality of these precedents, we decline to support the rejection under 35 U.S.C. § 101.

Ex Parte Bo Li, Appeal 2008-1213 (BPAI 2008).

The claim in question in *Bo Li* recited *a computer program product, comprising a computer usable medium having a computer readable program code embodied therein, said computer readable program code adapted to be executed to implement a method for generating a report* (claim 42). Further, the claim recited *providing a system, wherein the system comprises*

distinct software modules, and wherein the distinct software modules comprise a logic processing module, a configuration file processing module, a data organization module, and a data display organization module. The claim then recited several steps performed by the software modules.

Similarly to *Bo Li*, claim 160 recites *a computer program product, comprising a computer-readable medium having a computer readable program code embodied therein, said computer readable program code adapted to be executed by a computer to implement a method for recognizing a pattern in information comprising data.* Further the claim recites distinct software modules performing steps. As noted by the Board in *Bo Li*, “this combination has been found statutory under the teachings of *In re Lowry*.” The distinct software modules therefore further support patentability under §101.

In light of the above, Applicant respectfully submits that claim 160 recites patentable subject matter under §101. Claims 161-227 depend from claim 160, and therefore include each and every element of claim 160. Accordingly, Applicant respectfully submits that claims 160-227 recite patentable subject matter under §101.

VII. Claims 228-236

Amended independent claim 228 recites *a computer-readable medium on which is stored a computer program for providing a method for recognizing a pattern in information, the computer program comprising instructions which, when executed by a computer comprising a processor, cause the processor to perform certain steps.* Applicants respectfully submit that independent claim 228 recites patentable subject matter for at least two reasons. First, claim 228 recites an article (a computer-readable medium). Second, claim 228 recites steps that transform data into another state or thing.

As noted above with respect to claim 160, similar claims have been found to recite patentable subject matter because they recite a product having functional descriptive material encoded thereon. This product defines structural and functional relationships between data structures and computer hardware and software (MPEP §2106.01(I)).

Amended claim 228 further recites that the information *is representative of one or more physical characteristics or one or more representations of physical characteristics within a physical context of an item of interest*, that the information is *represented as a plurality of Fourier series in Fourier space*, that *associations are formed between at least two of the Fourier series*, and that at least two of the Fourier series that have been associated are stored in a memory. These steps transform the information (initially information representative of one or more physical characteristics or one or more representations of physical characteristics within a physical context of an item of interest) into another state or thing (associated Fourier series useful for finding patterns in the information). These steps provide further support for the patentability of claim 228 under §101, because they transform data into another state or thing.

In light of the above, Applicant respectfully submits that amended independent claim 228 recites patentable subject matter under §101 for at least two reasons. First, claim 228 recites an article (a computer-readable medium). Second, claim 228 recites steps that transform data into another state or thing. Claims 229-236 depend from claim 228, and therefore include each and every element of claim 228. Applicant therefore respectfully submits that claims 228-236 recite patentable subject matter under §101.

VIII. Claims 237-265

Amended independent claim 237 recites *obtaining a string comprising a sum of Fourier series from a memory, said string representing information, said information representative of one or more physical characteristics or one or more representations of physical characteristics within a physical context of an item of interest*. Applicant respectfully submits that claim 237 recites patentable subject matter because it is tied to a particular machine or apparatus. Claim 237 is tied to a particular memory, and recites an interplay between intermediate memory and high-level memory that further tie claim 237 to a particular machine or apparatus.

Claim 237 is tied to a particular machine or apparatus; specifically, a memory which has stored thereon a string comprising a sum of Fourier series. Because this string is stored in the memory prior to being obtained in the step recited in claim 237, the memory is a particular machine or apparatus.

Further, claim 237 recites: (1) *storing the summed Fourier series to an intermediate memory*; (2) *recalling the summed Fourier series from the intermediate memory*; and (3) *storing the Fourier series in the intermediate memory in the high level memory*. As noted above with respect to claim 127, these steps further tie claim 237 to a particular machine or apparatus.

In light of the above, Applicant respectfully submit that claim 237 recites patentable subject matter under §101 because claim 237 is tied to a particular machine or apparatus. Claims 238-265 depend from claim 237, and therefore include each and every element of claim 237. Accordingly, Applicant respectfully submits that claims 237-265 recite patentable subject matter under §101.

IX. Claim 266

Amended independent claim 266 recites recording ordered strings comprising Fourier series to a high level memory, said Fourier series representing information, said information representative of one or more physical characteristics or one or more representations of physical characteristics within a physical *context of an item of interest*; *storing the complex ordered strings to the high level memory*; and *displaying the pattern in the information on a display device of the computer*. Applicant respectfully submits that claim 266 recites patentable subject matter, because claim 266 transforms data into a different state or thing.

As noted above with respect to claim 51, the above-quoted steps transform the data into another state or thing. Specifically, the ordered strings initially represent information representative of one or more physical characteristics or one or more representations of physical characteristics within a physical context of an item of interest, and are stored in a high level memory. The information is transformed in the steps recited in claim 266 until a pattern in the information is found, and the pattern is displayed on a display device. Applicant notes that this transformation of raw data to a displayed pattern is similar to the transformation in *In re Abele*, which the Board notes with approval in the Decision at pages 21-22.

Accordingly, Applicant respectfully submits that claim 266 recites patentable subject matter under §101.

X. Claims 267-269

Amended independent claim 267 recites *accepting an input from one or more components representative of the current activation rates of the one or more components and one or more prior activation probability parameters*. Applicant respectfully submits that claim 267 recites patentable subject matter for at least two reasons. First, claim 267 recites antecedent steps that are manifestly statutory subject matter, regardless of whether an algorithm is present in the claim. Second, claim 267 transforms information into another state or thing.

As noted above with respect to claim 51, the component input indicates a type of data that is not dictated by the algorithm, and thus claim 267 recites patentable subject matter (*In re Abele*).

Further, claim 267 recites *generating an activation probability parameter using the input of the current activation rates and the prior activation probability parameter, the activation probability parameter based on a prior activation probability parameter and a weighting based on an activation rate of the corresponding component*. This step transforms the initial data into another state or thing in two ways. First, it assigns the raw and processed input data an activation probability parameter, which may be used to recognize a pattern in information. Further, it transforms the input from the component into a parameter stored in memory.

In light of the above, Applicant respectfully submits that claim 267 recites patentable subject matter under §101 for at least two reasons. Claim 267 recites antecedent steps that are manifestly statutory subject matter, and transforms data into another state or thing. Claims 268-269 depend from claim 267, and therefore include each and every element of claim 267. Accordingly, Applicant respectfully submits that claims 267-269 recite patentable subject matter under §101.

XI. Claim 270

Amended independent claim 270 recites *a computer program product for recognizing a pattern in information for use in a computer including a central processing unit and a memory, the memory maintaining a set of initial ordered Fourier series*. Claim 270 also recites program code means defining as series of means for performing the recited steps. Applicant respectfully

submits that claim 270 recites patentable subject matter , because claim 270 recites a particular article.

As noted above with respect to claim 160, a *Beauregard* claim such as claim 270 recites patentable subject matter. Claim 270 recites a particular article, specifically a computer readable medium.

Further, claim 270 recites *a computer readable medium and program code means embodied in the computer readable medium*. Applicant amends claim 270 to clarify that the steps are carried out using the central processing unit of the computer. As noted above with respect to claim 156, when a method is encoded onto a computer readable medium, as in claim 270, the encoded method “defines structural and functional interrelationships between the data structure and the computer software and hardware components which permit the data structure’s functionality to be realized, and thus is statutory” (MPEP at §2106.01(I)).

Accordingly, Applicant respectfully submits that claim 270 recites patentable subject matter under §101.

XII. Claims 271-280

Amended independent claim 271 recites *receiving input data from a transducer, the input data related to one or more physical characteristics or one or more representations of physical characteristics within a physical context of an item of interest*. Applicant respectfully submits that claim 271 recites patentable subject matter for at least two reasons. First, Claim 271 recites antecedent steps not dictated by an algorithm. Second, claim 271 transforms data into another state or thing.

As noted above with respect to claim 51, a step such as the above-quoted “receiving input step” in claim 271 indicates a data type defined by the transducer and not dictated by an algorithm. This “antecedent step” recites manifestly statutory subject matter, regardless of whether or not an algorithm is present in the claim.

Further, claim 271 transforms the input data from the transducer into a predominant configuration string which is useful for identifying a pattern in newly inputted data. In addition,

claim 271 transforms the data from an input from a transceiver into a predominant configuration string stored in a computer memory.

In light of the above, Applicant respectfully submits that claim 271 recites patentable subject matter under §101 for at least two reasons. First, claim 271 recites antecedent steps which define manifestly statutory subject matter. Second, claim 271 transforms data into another state or thing. Claims 272-280 depend from claim 271, and therefore include each and every element of claim 271. Accordingly, Applicant respectfully submits that claims 271-280 recite patentable subject matter under §101.

XIII. Claims 281-284

Amended independent claim 281 recites *a system for recognizing a pattern in information comprising data*, the system comprising *a computer memory comprising a set of initial ordered Fourier series*. Applicant respectfully submits that claim 281 recites patentable subject matter for at least two reasons. First, claim 281 recites a particular article. Second, claim 281 transforms data into another state or thing.

As noted above with respect to claim 156, when functional descriptive material is encoded on a computer readable medium, the system defines structural and functional interrelationships between the data structure and the computer hardware or software, and therefore is statutory (MPEP 2106.01(I)).

Further, claim 281 recites distinct software components. As noted above with respect to claim 160, such a recitation lends further support to a finding that claim 281 recites patentable subject matter.

Still further, claim 281 transforms the data from *information representative of one or more physical characteristics or one or more representations of physical characteristics within a physical context of an item of interest* into a predominant configuration string useful for identifying a pattern in information.

In light of the above, Applicant respectfully submits that independent claim 281 recites patentable subject matter under §101 for at least two reasons. Claims 282-284 depend from claim

281, and therefore include each and every element of claim 281. Accordingly, Applicant respectfully submits that claims 281-284 recite patentable subject matter under §101.

XIV. Claims 285-289

Amended independent claim 285 recites *encoding said data as parameters of a plurality of Fourier components in Fourier space, wherein said information comprising said data represents one or more physical characteristics or one or more representations of physical characteristics within a physical context of an item of interest*. Applicant respectfully submits that claim 285 recites patentable subject matter for at least two reasons. First, claim 285 transforms data into another state or thing. Second, claim 285 includes a particular machine or apparatus.

This data is transformed into a string representing Fourier series, which is useful to identify a pattern in information. Therefore, claim 285 transforms the data into another state or thing.

Further, claim 285 recites that the method is “computer implemented” and utilizes a computer comprising a processor. The processor is used in several of the steps. Applicants respectfully submit that this ties claim 285 to a specific machine or apparatus.

In light of the above, Applicant respectfully submits that claim 285 recites patentable subject matter under §101 for at least two reasons. Claim 285 transforms data into a different state or thing, and includes a particular machine or apparatus. Claims 286-289 depend from claim 285, and therefore include each and every element of claim 285. Accordingly, Applicant respectfully submits that claims 285-289 recite patentable subject matter under §101.

XV. Claims 290-293

Amended independent claim 290 recites *a computer readable medium having stored thereon a computer program to implement a method of recognizing a pattern in information comprising data, said computer program comprising a plurality of codes for executing the steps of ...* Applicant respectfully submits that claim 290 recites patentable subject matter for at least two reasons. First, claim 290 recites a particular article (i.e., a computer readable medium). Second, claim 290 transforms data into another state or thing.

As noted above with respect to claim 156, when functional descriptive material is encoded onto a computer readable medium, as in claim 290, the encoded material “defines structural and functional interrelationships between the data structure and the computer software and hardware components which permit the data structure’s functionality to be realized, and thus is statutory” (MPEP at §2106.01(I)).

Claim 290 further recites *encoding said data as parameters of a plurality of Fourier components in Fourier space, wherein said information comprising said data represents one or more physical characteristics or one or more representations of physical characteristics within a physical context of an item of interest*. This data is transformed into a string that is useful for recognizing patterns in data. Therefore, Applicant respectfully submits that claim 290 transforms the data into another state or thing.

In light of the above, Applicant respectfully submits that independent claim 290 recites allowable subject matter for at least two reasons. First, claim 290 recites a particular article (i.e., a computer readable medium). Second, claim 290 transforms data into another state or thing. Claims 291-293 depend from claim 290, and therefore include each and every element of claim 290. Accordingly, Applicant respectfully submits that claims 290-293 recites patentable subject matter under §101.

XVI. Claims 294-298

Amended independent claim 294 recites *obtaining a string comprising a sum of Fourier series from a computer memory, said string representing information that represents one or more physical characteristics or one or more representations of physical characteristics within a physical context of an item of interest*. Applicant respectfully submits that claim 294 recites patentable subject matter for at least two reasons. First, claim 294 is tied to a particular machine or apparatus. Second, claim 294 transforms data into another state or thing.

Claim 294 is tied to a particular machine or apparatus, specifically a computer having a memory with the described string stored thereon. Because the string is stored on the memory prior to the step recited in claim 294, the memory is a particular machine or apparatus. Further, claim 294 recites an interplay between an intermediate memory and high level memory. As

noted above with respect to claim 127, these steps further tie claim 294 to a particular machine or apparatus.

Still further claim 294 transforms the string into another state or thing, specifically an *updated summed Fourier series representing said plurality of Fourier series in said strings ordered according to a plurality of associations between the information of the plurality of order formatted subset Fourier series and the at least one ordered Fourier series* stored in a high-level memory.

In light of the above, Applicant respectfully submits that claim 294 recites patentable subject matter under §101 for at least two reasons. Claim 294 is tied to a particular machine or apparatus, and transforms data into another state or thing. Claims 295-298 depend from claim 294, and therefore include each and every element of claim 294. Accordingly, Applicant respectfully submits that claims 294-298 recite patentable subject matter under §101.

XVII. Claims 299-303

Amended independent claim 299 recites *providing an input layer operable to receive data, said information comprising said data* representative of one or more physical characteristics or one or more representations of physical characteristics within a *physical context of an item of interest* and displaying a pattern derived from the information on a display device. Applicant respectfully submits that claim 299 recites patentable subject matter for at least two reasons. First, claim 299 transforms data into another state or thing. Second, claim 299 recites a particular article (i.e., a computer readable medium).

As noted above with respect to claim 51, the above-quoted procedure transforms the data from information representative of physical characteristics or representations of physical characteristics within a physical context of an item of interest into a pattern displayed on a display device.

Further claim 299 recites *a computer readable medium having stored thereon a computer program to implement a method of recognizing a pattern in information comprising data and establishing an order formatted pattern in the information, said computer program comprising a plurality of codes for executing the steps of ...* As noted above with respect to claim 156, when a

data structure is encoded onto a computer readable medium, as in claim 299, the encoded method “defines structural and functional interrelationships between the data structure and the computer software and hardware components which permit the data structure’s functionality to be realized, and thus is statutory.” Further, as noted above with respect to claim 160, such *Beauregard* claims have been found to be statutory.

In light of the above, Applicant respectfully submits that claim 299 recites patentable subject matter under §101 for at least two reasons. Claim 299 transforms data into another state or thing, and recites a particular article (i.e., a computer readable medium). Claims 300-303 depend from claim 299, and thus include each and every element of claim 299. Accordingly, Applicant respectfully submits that claims 299-303 recite patentable subject matter under §101.

XVIII. Claims 304-306

Amended independent claim 304 recites *a computer program product for use in a system for recognizing a pattern in information comprising data, said computer program product comprising a computer readable medium having stored thereon program code means, said program code means comprising means* for performing certain steps. Applicant respectfully submits that claim 304 recites patentable subject matter for at least three reasons. First, claim 304 recites a particular article. Second, claim 304 recites antecedent steps that define manifestly statutory subject matter. Third, claim 304 transforms data into another state or thing.

As noted above with respect to claim 160, *Beauregard* claims such as claim 304 have been found to recite patentable subject matter under §101. Claim 304 recites a particular article, i.e. a computer readable medium. As noted above with respect to claim 156, when a data structure is encoded onto a computer readable medium, as in claim 304, the encoded method “defines structural and functional interrelationships between the data structure and the computer software and hardware components which permit the data structure’s functionality to be realized, and thus is statutory” (MPEP at §2106.01(I)).

Further, claim 304 recites *means for receiving data from a transducer*. As noted above, this step defines the structure of the data, which is not dictated by the algorithm. Such “antecedent steps” define patentable subject matter, regardless of whether the claimed procedure involves an algorithm (*In re Abele*).

Still further, claim 304 recites a transformation of input data from a transducer into a complex ordered string stored in a memory.

In light of the above, Applicant respectfully submits that claim 304 recites patentable subject matter under §101 for at least three reasons. First, claim 304 recites a particular article. Second, claim 304 recites antecedent steps that define manifestly statutory subject matter. Third, claim 304 transforms data into another state or thing. Claims 305-306 depend from claim 304, and therefore include each and every element of claim 304. Accordingly, Applicant respectfully submits that claims 304-306 recite patentable subject matter under §101.

XIX. Claims 307-312

Applicant respectfully submits that amended independent claim 307 recites patentable subject matter for at least two reasons. First, claim 307 recites a particular article. Second, claim 307 transforms data into another state or thing.

Claim 307 recites a data structure created using a computer and stored in memory. The memory of the computer is a particular article, and thus is statutory. The Board recognizes that the data structure recited in claim 307 constitutes functional descriptive material (Decision at pages 10-11). When the data structure is encoded onto a computer readable medium, as in claim 307, the encoded method “defines structural and functional interrelationships between the data structure and the computer software and hardware components which permit the data structure’s functionality to be realized, and thus is statutory” (MPEP at §2106.01(I)).

Further, at least one of a plurality of activation probability objects is stored in a memory. The data structure is utilized to generate the activation probability objects, and in doing so the data object is transformed into another state or thing.

In light of the above, Applicant respectfully submits that claim 307 recites patentable subject matter under §101 for at least two reasons. First, claim 307 recites a particular article. Second, claim 307 transforms data into another state or thing.. Claims 308-312 depend from claim 307, and therefore include each and every element of claim 307. Accordingly, Applicant respectfully submits that claims 307-312 recite patentable subject matter under §101.

XX. Claims 313-322

Amended independent claim 313 recites that the *information comprising said data is representative of one or more physical characteristics or one or more representations of physical characteristics within a physical characteristic of an item of interest, wherein said data structure is created by a computer*. Claim 313 also recites that *each of said plurality of transduced data objects providing an input data object representative of characteristics received from a respective one of a plurality of transducers acting on a signal*. Applicant respectfully submits that claim 313 recites patentable subject matter for at least three reasons. First, claim 313 recites a particular article, specifically a memory including a data structure. Second, claim 313 includes antecedent steps that define manifestly statutory subject matter. Third, claim 313 is tied to a particular machine or apparatus.

Applicant notes that claim 313 does not recite a mere abstraction, because the information is representative of a physical characteristic of an item of interest, and is stored in a memory for access by a computer program. As noted above with respect to claim 156, when functional descriptive material is encoded onto a computer readable medium, as in claim 313, the encoded method “defines structural and functional interrelationships between the data structure and the computer software and hardware components which permit the data structure’s functionality to be realized, and thus is statutory” (MPEP at §2106.01(I)).

Further, claim 313 also recites that *each of said plurality of transduced data objects providing an input data object representative of characteristics received from a respective one of a plurality of transducers acting on a signal*. Because data is received by a plurality of transducers, claim 313 recites antecedent steps that define manifestly statutory subject matter (*In re Abele*).

Still further, claim 313 recites a *plurality of transducers*. Claim 313 is therefore tied to a particular machine or apparatus.

In light of the above, Applicant respectfully submits that claim 313 recites patentable subject matter under §101 for at least three reasons. First, claim 313 recites a particular article, specifically a memory including a data structure. Second, claim 313 includes antecedent steps that define manifestly statutory subject matter. Third, claim 313 is tied to a particular machine

or apparatus.. Claims 314-322 depend from claim 313, and therefore include each and every element of claim 313. Accordingly, Applicant respectfully submits that claims 313-322 recite patentable subject matter under §101.

CONCLUSION

In view of the above amendment, Applicants respectfully submit that the pending application is in condition for allowance. If the Examiner deems that issues persist, the Examiner is encouraged to contact the Applicants' attorney.

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